

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1 - 7 (canceled)

Claim 8 (currently amended) The device of claim 5 30 including Tb³⁺ as a co-dopant.

Claim 9 (previously presented) The device of claim 29 in which the semiconductor device is a GaN based device.

Claim 10 (canceled)

Claim 11 (previously presented) The device of claim 29 in which the semiconductor device is a GaN based device.

Claim 12 (original) The device of claim 11 in which the semiconductor device is a light emitting diode.

Claim 13 (canceled)

Claim 14 (original) A light emitting semiconductor device, comprising:

a GaN based light emitting diode that emits light having a wavelength in the range of 200 nm to 620 nm;

a red phosphor that absorbs light of a wavelength in the range of 240 nm to 550 nm and emits red light at a wavelength in the range of 580 nm to 700 nm, having the formula:



where x is 0.05 to 0.5, Ln is an element selected from the group consisting of Y, La and Gd, and A is an activator selected from Eu³⁺, Sm³⁺ and Pr³⁺, or any combination thereof, with or without

Tb³⁺ as a co-dopant;

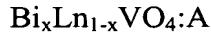
a green phosphor; and
a blue phosphor.

Claim 15 (original) The device of claim 14 including Tb³⁺ as a co-dopant.

Claim 16 (previously presented) The device of claim 14 in which said green phosphor is ZnS:(Cu⁺,Al³⁺) and said blue phosphor is BaMgAl₁₀O₁₇:Eu²⁺.

Claim 17 (previously presented) A white light emitting phosphor combination, comprising:

a red phosphor having the formula:



where x is greater than 0 and less than 1, Ln is an element selected from the group consisting of Y, La and Gd, and A is an activator selected from Eu³⁺, Sm³⁺ or Pr³⁺, or any combination thereof, with or without Tb³⁺ as a co-dopant;

a green phosphor; and
a blue phosphor.

Claim 18 (original) The phosphor combination of claim 17 in which said red phosphor absorbs light of a wavelength in the range of 240 nm to 550 nm and emits red light at a wavelength in the range of 580 nm to 700 nm.

Claims 19 - 21 (canceled)

Claim 22 (currently amended) The phosphor combination of claim 19 30 in which said red phosphor includes Tb³⁺ as a co-dopant.

Claim 23 (previously presented) The phosphor combination of claim 17 in which said green phosphor is ZnS:(Cu⁺,Al³⁺) and said blue phosphor is BaMgAl₁₀O₁₇:Eu²⁺ suitable for use in a GaN based device..

Claim 24 (previously presented) A white light emitting phosphor combination,

a red phosphor that absorbs said light of a wavelength in the range of 240 nm to 550 nm and emits red light at a wavelength in the range of 580 nm to 700 nm, having the formula:

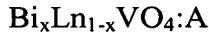


where x is 0.05 to 0.5, Ln is an element selected from the group consisting of Y, La and Gd, and A is an activator selected from Eu³⁺, Sm³⁺ and Pr³⁺, or any combination thereof, with or without Tb³⁺ as a co-dopant.;

a green phosphor comprising ZnS:(Cu⁺,Al³⁺); and
a blue phosphor comprising BaMgAl₁₀O₁₇:Eu²⁺.

Claim 25 (original) The phosphor combination of claim 24 in which said red phosphor includes Tb³⁺ as a co-dopant.

Claim 26 (previously presented) A red phosphor that absorbs said light of a wavelength in the range of 240 nm to 550 nm and emits red light at a wavelength in the range of 580 nm to 700 nm, having the formula:



where x is 0.05 to 0.5, Ln is an element selected from the group consisting of Y, La and Gd, and A is an activator selected from Eu³⁺, Sm³⁺ and Pr³⁺, or any combination thereof, with or without Tb³⁺ as a co-dopant.

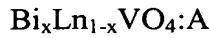
Claim 27 (currently amended) The phosphor of claim 32 in which x is 0.05 to 0.5.

Claim 28 (currently amended) The phosphor of claim 26 in which in which said red phosphor includes Tb³⁺ as a co-dopant.

Claim 29 (previously presented) A light emitting device, comprising:

a semiconductor device that emits light having a wavelength in the range of 200 nm to 620 nm; and

a red phosphor having the formula:



where x is 0.05 to 0.5, Ln is an element selected from the group consisting of Y, La and Gd, and

A is an activator selected from Eu³⁺, Sm³⁺ and Pr³⁺, or any combination thereof, with or without Tb³⁺ as a co-dopant.

Claim 30 (previously presented) A light emitting device, comprising:

a semiconductor device that emits light having a wavelength in the range of 200 nm to 620 nm; and

a red phosphor comprising a vanadate combined with yttrium, gadolinium and/or lanthanum and activated with trivalent Eu³⁺, Sm³⁺ or Pr³⁺, or any combination thereof, with Tb³⁺ as a co-dopant.

Claim 31 (previously presented) A white light emitting phosphor combination, comprising:

a red phosphor comprising a vanadate combined with yttrium, gadolinium and/or lanthanum and activated with trivalent Eu³⁺, Sm³⁺ and Pr³⁺, or any combination thereof, with Tb³⁺ as a co-dopant;

a green phosphor; and

a blue phosphor.

Claim 32 (previously presented) A red phosphor that absorbs said light of a wavelength in the range of 240 nm to 550 nm and emits red light at a wavelength in the range of 580 nm to 700 nm, having the formula:



where x is greater than 0 and less than 1, Ln is an element selected from the group consisting of Y, La and Gd, and A is an activator selected from Eu³⁺, Sm³⁺ and Pr³⁺, or any combination thereof, with Tb³⁺ as a co-dopant.

Claim 33 (new) A light emitting GaN based device, comprising:

a semiconductor device that emits light having a wavelength in the range of 200 nm to 620 nm;

a green phosphor and a blue phosphor; and

a red phosphor having the formula:

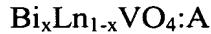


where x is greater than 0 and less than 1, Ln is an element selected from the group consisting of Y, La and Gd, and A is an activator selected from Eu³⁺, Sm³⁺ and Pr³⁺, or any combination thereof, with or without Tb³⁺ as a co-dopant.

Claim 34 (new) A light emitting GaN based device, comprising:

 a semiconductor device that emits light having a wavelength in the range of 200 nm to 620 nm;

 a red phosphor having the formula:



where x is greater than 0 and less than 1, Ln is an element selected from the group consisting of Y, La and Gd, and A is an activator selected from Eu³⁺, Sm³⁺ and Pr³⁺, or any combination thereof, with or without Tb³⁺ as a co-dopant;

 a green phosphor having the formula: ZnS:(Cu⁺,Al³⁺); and

 a blue phosphor having the formula: BaMgAl₁₀O₁₇:Eu²⁺.